Northern and Eastern Mojave Planning Area: Economic Impact Analysis

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1. INTRODUCTION

The California Desert Protection Act (CDPA), passed by Congress October 31, 1994, transferred over three million acres of the California desert from the Bureau of Land Management (BLM) to the National Park Service (NPS), and designated nearly eight million acres of wilderness on both NPS and BLM lands. In addition, the act created the Mojave National Preserve, located in the eastern Mojave Desert of California, and with the addition of lands formerly managed by the Bureau of Land Management, designated Death Valley National Monument as a national park. To meet the requirements established by the CDPA, the National Park Service (NPS) has prepared a General Management Plan/Draft Environmental Impact Statement (GMP/DEIS) for both the Mojave National Preserve and Death Valley National Park.

In order to anticipate and address changes in desert management associated with the CDPA, the NPS and BLM agreed to form three sub-regional planning teams to focus on three specific planning areas. The Northern and Eastern Mojave Planning Area (NEMO), which includes Mojave National Preserve, Death Valley National Park, and approximately 2.3 million acres of BLM land, represents one of the three planning areas.

In September 1995 through April 1997, the NEMO planning team conducted a series of public meetings to gather public input on the management direction of federal lands within NEMO. The NPS, which manages the majority of land within NEMO, took the lead on the NEMO interagency planning effort. From this public input, and discussions with agency staff, the NPS developed three management alternatives: Alternative 1: Proposed, Alternative 2: No Action, and Alternative 3: Optional. The details of these alternatives are shown in the Mojave National Preserve and Death Valley National Park GMP/DEIS.

Project Objectives

The primary objective of this report is to analyze the regional socioeconomic impacts associated with the management alternatives as described in the GMP/DEIS for both the Mojave National Preserve and Death Valley National Park. Specifically these objectives include:

- identify and describe the study area for analysis of regional economic impacts
- identify and outline factors that will generate economic changes
- analyze and report regional economic impacts (direct and total) associated with specific management alternatives

Methodology

This report analyzes the socioeconomic conditions for a study area that surrounds the NEMO planning area (hereafter referred to as the NEMO Economic Area). The NEMO Economic Area is defined geographically by zip code and includes the population that resides and works within the zip code boundaries located around NEMO (see Appendix A for a zip code list). The NEMO Economic Area was created to identify the population most likely to incur economic impacts as a result of changes associated with the management alternatives.

For those management alternatives which had quantifiable impacts, direct and total economic impacts were measured with the use of IMPLAN software (see Appendix B) and are expressed in

terms of employment, output, employee compensation, and proprietor income. Other management impacts were discussed qualitatively.

Report Contents

After this introductory chapter, Chapter 2 provides a socioeconomic description of the affected environment. Chapter 3 provides, by resource issue, an overview of management actions and an analysis of the economic impacts for NEMO Economic Area. Chapter 4 summarizes the total economic impacts and Chapter 5 provides a discussion of the catalysts for change.

2. AFFECTED ENVIRONMENT

Demographic Characteristics

The NEMO Planning Area includes portions of seven counties (Mojave, Inyo, Esmeralda, Nye, Kern, San Bernardino, and Clark) within three states (California, Nevada, and Arizona). Table 2-1 shows the population for each county by census year. Four counties (San Bernardino, Clark, Kern, and Mohave) contain approximately 99% of the total population. Within these four counties, the majority of the population live in large urban centers with economies are not directly linked to activities that occur within or adjacent to NEMO.

Table 2-1.

Population of Counties Within and Adjacent to NEMO, 1970-90

	Population			
County	1970	1980	1990	Percent of Total (1990)
Clark County, NV	273,288	463,087	741,459	26.2%
Esmeralda County, NV	459	777	1,344	0.0%
Inyo County, CA	15,571	17,895	18,281	0.6%
Kern County, CA	329,162	403,089	543,477	19.2%
Mohave County, AZ	25,857	55,865	93,497	3.3%
Nye County, NV	5,599	9,048	17,781	0.6%
San Bernardino County, CA	684,072	895,016	1,418,380	50.0%
Total	1,334,008	1,844,777	2,834,219	100%
Annual Percent Increase		3.3%	4.4%	

Source: Dean Runyan Associates & US Census Data

The NEMO Economic Area, defined geographically by zip code areas, includes the population that reside in and the labor force that works within each zip code area of the communities located along the transportation corridors that surround NEMO. Zip code areas were chosen because population and County Business Patterns Data (employment by industry) were available on a zip code level and this level of detail provided the opportunity to target and examine the region most affected by the NEMO management alternatives. The NEMO Economic Area was designed specifically to analyze the economic impacts of management actions within NEMO. As shown in Table 2-2, the NEMO Economic Area includes approximately 189,000 residents. Of those total residents, approximately 1,736 (less than 1%) live within NEMO, primarily in the communities of Baker, Shoshone, and Furnace Creek.

Table 2-2.

Population of Residents within NEMO Economic Area* and within NEMO

	Population		
County	1990	1996	1996 (within NEMO)
Clark County, NV	10,293	11,852	none
Esmeralda County, NV	712	820	none
Inyo County, CA	19,301	22,225	926
Kern County, CA	34,411	39,624	none
Mohave County, AZ	25,590	29,467	none
Nye County, NV	7,440	21,567	none
San Bernardino County, CA	55,691	64,128	810
Total	153,438	189,683	1,736

** NEMO Economic Area defined as zip codes boundaries located around NEMO*

Source: Dean Runyan Associates & US Census Data

In terms of population, communities such as Bishop, Big Pine and Lone Pine on the northwest and Beatty on the northeast have remained fairly stable. In contrast, communities such as Pahrump and Bullhead City to the south and Barstow to the southeast have experienced significant population growth. Ridgecrest, which is strongly influenced by military activity, has also experienced significant population growth. Table 2-3 lists the communities that surround NEMO and shows the population by year.

Table 2-3.

Population of Communities that Surround NEMO, 1980-1996

Communities	Population 1980	1990	1996	Average Annual % Increase
Barstow (San Bernardino County, CA)	17,690	21,454	22,250	1.4%
Beatty (Nye County, NV)	1,509	1,630	1,893	1.4%
Big Pine (Inyo County, CA)	1,510	1,086	1,158	-1.6%
Bishop City (Inyo County, CA)	3,333	3,475	3,480	0.3%
Bullhead City (Mohave County, AZ)	10,364	21,951	27,370	6.3%
Lone Pine (Inyo County, CA)	1,684	1,818	2,100	1.4%
Needles (San Bernardino County, CA)	4,120	5,191	5,750	2.1%
Pahrump (Nye County, NV)	3,000	7,424	23,076	13.6%
Ridgecrest (Kern County, CA)	15,929	27,725	28,750	3.8%
Total	59,139	91,754	115,827	4.3%

Source: Dean Runyan Associates, US Census Data, & State/City Demographics

Much of the demographic information, which was available on a county level, was not available for the NEMO Economic Area; as a result; the bulk of the information contained in the remaining portion of this section is shown by county. The characteristics for any or all of the counties do not necessarily represent the NEMO Economic Area. When information was available, distinctions between counties and the portion of the county within the NEMO Economic Area are discussed.

Between 1980 and 1990, nearly all counties experienced a shift in age distribution toward older age residents. Three counties (San Bernardino, Kern, and Inyo) also experienced a considerable shift in the proportion of younger age residents. Compared to the statewide age distributions, the combined group of counties contain a slightly younger age distribution; however, individually two counties (Inyo and Mohave) contain an age distribution that is skewed more heavily toward older residents. Table 2-4 compares the age distribution within each of the counties for the years 1980 and 1990.

Table 2-4.

Age Distribution of Counties Adjacent to NEMO

1980	Under 18	18-65 years	65 & older	Population
Clark County, NV	27.8%	64.6%	7.6%	463,087
Esmeralda County, NV	25.4%	63.6%	11.1%	777
Inyo County, CA	2.5%	82.0%	15.5%	17,895
Kern County, CA	9.0%	81.3%	9.7%	403,089
Mohave County, AZ	26.1%	58.6%	15.3%	55,865
Nye County, NV	28.7%	62.2%	9.0%	9,048
San Bernardino County, CA	7.9%	82.1%	10.0%	895,016
Weighted Average/Total	13.7%	76.7%	9.5%	1,844,777
1990				
Clark County, NV	24.4%	65.2%	10.5%	741,459
Esmeralda County, NV	23.5%	65.5%	11.0%	1,344
Inyo County, CA	24.4%	57.0%	18.6%	18,281
Kern County, CA	31.5%	58.9%	9.7%	543,477
Mohave County, AZ	22.8%	56.4%	20.8%	93,497
Nye County, NV	24.1%	64.1%	11.8%	17,781
San Bernardino County, CA	30.9%	60.4%	8.7%	1,418,380
Weighted Average/Total	28.9%	61.2%	9.9%	2,834,219
1990				
California	26.0%	63.5%	10.5%	29,760,021
Nevada	24.5%	64.9%	10.6%	1,201,833
Arizona	26.7%	60.3%	13.0%	3,665,228

Source: Dean Runyan Associates & US Census Data

Education and Income Level

Table 2-5 shows the education level as the percentage of persons 25 years and over with a high school diploma and Bachelor's degree. Each of the counties show fairly similar levels of educational achievement. However, compared to the statewide figures, the education level of the counties adjacent to NEMO appears more similar to Nevada.

Table 2-5.

Education Level of Counties Adjacent to NEMO

	Education Level (persons 25 years and over)	
County/State	High School Graduate or higher	Bachelor's Degree or higher
Clark County, NV	77.3%	13.8%
Esmeralda County, NV	71.5%	11.1%
Inyo County, CA	81.7%	13.5%
Kern County, CA	67.6%	13.3%
Mohave County, AZ	72.8%	10.3%
Nye County, NV	75.2%	9.5%
San Bernardino County, CA	75.4%	14.9%
Weighted Average	74.5%	14.1%
California	76.2%	23.3%
Nevada	78.8%	15.3%
Arizona	78.7%	20.3%

Source: Dean Runyan Associates & US Census Data

Many tribal communities reside within the NEMO Economic Area and one (Timbisha Shoshone of Death Valley) within NEMO. Table 2-6 highlights available demographic characteristics for each of these tribal communities. Compared to the education level of the counties adjacent to NEMO, most of the tribal communities have a lower percentage of high school graduates.

Table 2-6.

Tribal Communities that Surround NEMO, 1996

Tribe/Reservation	Reservation Population	Tribal Enrollment	High School Graduate or higher*
Big Pine Band of Owens Valley	403	NA	77.2%
Chemehuevi Indian Tribe	325	509	50.9%
Mohave/Fort Mohave	479	967	57.4%
Paiute/Fort Independence	58	NA	75.0%
Paiute/Las Vegas	86	66	52.9%
Paiute/Pahrump	NA	NA	NA
Paiute-Shoshone Indians of Lone Pine	235	1,400	68.4%
Paiute-Shoshone Indians of the Bishop	1,437	1,408	67.9%
San Manuel Band of Mission Indians	59	85	44.4%
Timbisha Shoshone of Death Valley	207	277	NA
Total	3,289	4,712	

* Enrolled tribal members

Source: Dean Runyan Associates & Economic Development Administration U.S. Dept. of Commerce

With the exception of Nye, the predominately low population counties have significantly lower median household and per capita income compared to the high population counties (i.e., Clark, San Bernardino, and Kern). Table 2-7 shows the median household and per capita income level by county. Compared to the statewide averages, the income levels for the counties adjacent to NEMO appear more similar to those of Nevada and Arizona rather than California.

Table 2-7.

Income Level for Counties Adjacent to NEMO, 1989

County/State	Annual Income ($)	
	Median Household ($)	Per Capita ($)
Clark County, NV	30,746	15,109
Esmeralda County, NV	25,577	12,776
Inyo County, CA	24,386	13,397
Kern County, CA	28,634	12,154
Mohave County, AZ	24,002	11,933
Nye County, NV	30,211	15,454
San Bernardino County, CA	33,443	13,358
Weighted Average	31,421	13,551
California	35,798	16,409
Nevada	31,011	15,214
Arizona	27,540	13,461

Source: Dean Runyan Associates & US Census Data

Relative to the counties adjacent to NEMO, the unemployment rate is significantly higher and the per capita income is significantly lower for the tribal communities. Table 2-8 shows the total labor force, unemployment rate, and per capita income for tribal communities that surround NEMO.

Table 2-8.

Employment and Per Capita Income for Tribal Communities that Surround NEMO, 1996

Tribe/Reservation	Labor Force	Unemployment Rate	Per Capita Income ($)
Big Pine Band of Owens Valley	128	15.0%	6,699
Chemehuevi Indian Tribe	45	24.4%	6,209
Mohave/Fort Mohave	102	15.7%	3,942
Paiute/Fort Independence	12	NA	8,386
Paiute/Las Vegas	30	NA	6,750
Paiute/Pahrump	NA	NA	NA
Paiute-Shoshone Indians of Lone Pine	68	23.5%	5,433
Paiute-Shoshone Indians of the Bishop	414	27.3%	6,799
San Manuel Band of Mission Indians	8	NA	3,437
Timbisha Shoshone of Death Valley	106	39.6%	NA
Total/Weighted Average	913	25.2%	5,753

Source: Dean Runyan Associates & Economic Development Administration U.S. Dept. of Commerce

Major Industry Employment and Payroll Activity

Annual employment and payroll by major industry group provides a measure of the significant sources of economic activity for each county. Tables 2-9 through 2-15 show, for each county adjacent to NEMO, average annual employment and payroll by major industry group. In order to identify employment activity potentially impacted by management actions related to visitor use services and facilities, travel service, dining, and recreation service was combined and included as a major industry group. Particularly within the high population counties (Clark, Kern, and San Bernardino), the vast majority of economic activity does not occur within the NEMO Economic Area.

Within the NEMO Economic Area, travel, dining, and recreation services contribute to a significant portion of employment. Table 2-16 provides an employment and payroll profile of the area.

Clark County, Nevada

Travel, dining, and recreation services provide the major source of economic activity to Clark County. As shown in Table 2-9, travel, dining, and recreation services contribute approximately 28 percent of annual payroll and 35 percent of annual employment. Services, construction, and government also provide large contributions to Clark County's economy. Economic activity within Las Vegas, which was not included in the NEMO Economic Area, accounts for the majority of Clark County's economy.

Table 2-9.

Clark County, Nevada
Average Annual Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Mining	542	22,929,904	42,306	0.2%
Construction	55,125	1,906,833,412	34,591	12.6%
Manufacturing-Durable	9,617	338,202,568	35,167	2.2%
Manufacturing-Nondurable	8,150	236,461,514	29,014	1.6%
Trans., Comm., & Utilities	28,006	873,121,171	31,176	5.8%
Wholesale Trade	17,810	614,358,823	34,495	4.0%
Retail Trade	56,697	1,214,714,115	21,425	8.0%
Finance, Insurance, Real Estate	26,951	896,342,375	33,258	5.9%
Travel, Dining, and Rec. Service	189,867	4,303,106,518	22,664	28.3%
Services: All Others	99,942	2,830,064,465	28,317	18.6%
Government	55,075	1,944,689,309	35,310	12.8%
Total	547,782	15,180,824,174	27,713	100%

Source: Dean Runyan Associates & Nevada Department of Employment, Training, and Rehabilitation

Esmeralda County, Nevada

Employment in Esmeralda County depends primarily on mining. As shown in Table 2-10, mining accounts for approximately 64 percent of Esmeralda County's annual payroll and 43 percent of annual employment. Services and government provide the bulk of the remaining contributions to annual payroll and employment. Although Esmeralda County borders NEMO, no communities of any significant size are located within the NEMO Economic Area.

Table 2-10.

Esmeralda County, Nevada

Average Annual Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Mining	127	5,499,654	43,304	63.7%
Construction	9	119,559	13,284	1.4%
Trans., Comm., & Utilities	3	36,136	12,045	0.4%
Wholesale & Retail Trade	6	38,164	6,361	0.4%
Travel, Dining, and Rec. Service	13	91,080	6,789	1.1%
Services: All others	36	954,723	26,520	11.1%
Government	101	1,888,131	18,694	21.9%
Total	295	8,627,447	29,246	100%

Source: Dean Runyan Associates & Nevada Department of Employment, Training, and Rehabilitation

Nye County, Nevada

As shown in Table 2-11, mining, which generates approximately 23 percent of annual payroll and 16 percent of employment, provides a substantial economic contribution to Nye County. Services and government also provide large contributions to annual payroll and employment. Although low in terms of percentage of annual payroll (6.7%), travel, dining, and recreation services contribute 16 percent of Nye County's employment. Within Nye County, the communities of Pahrump and Beatty were included in the NEMO Economic Area.

Table 2-11.

Nye County, Nevada
Average Annual Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Mining	1,375	59,039,399	42,938	22.6%
Construction	438	10,598,277	24,197	4.1%
Manufacturing	168	2,586,084	15,393	1.0%
Trans.,Comm., & Utilities	235	8,101,028	34,472	3.1%
Wholesale & Retail Trade	704	14,491,767	20,585	5.5%
Finance, Insurance, Real Estate	160	4,307,393	26,921	1.6%
Travel, Dining, and Rec. Service	1,340	17,486,283	13,049	6.7%
Services:All others	2,555	100,460,322	39,319	38.5%
Government	1,416	44,175,576	31,197	16.9%
Total	8,391	261,246,129	31,134	100%

Source: Dean Runyan Associates & Nevada Department of Employment, Training, and Rehabilitation

Inyo County, California

As shown in Table 2-12, Inyo County's economic activity depends heavily on government. Federal, state, and local government combined contribute approximately 41 percent of annual payroll and 30 percent of employment. Travel, dining, and recreation services are also significant and suggest that Inyo County depends on visitors for a large number of private sector jobs. All of Inyo County, which includes the communities of Lone Pine, Big Pine, and Bishop, was included in the NEMO Economic Area.

Table 2-12.

Inyo County, California
Average Annual Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Agriculture, Forestry,Fishing	74	1,209,564	16,345	0.7%
Mining & Construction	336	12,487,505	37,165	7.7%
Manufacturing-Durable	48	1,016,422	21,175	0.6%
Manufacturing-Nondurable	280	7,182,329	25,651	4.4%
Trans,Comm,Elec,Gas,Sanitary	284	9,529,984	33,556	5.9%
Wholesale Trade	177	4,278,889	24,175	2.6%
Retail Trade	979	17,553,131	17,930	10.9%
Finance, Insurance, Real Estate	142	3,294,250	23,199	2.0%
Travel, Dining, and Rec. Service	1,555	16,196,917	10,416	10.0%
Services	1,056	22,092,504	20,921	13.7%
Federal Government	338	11,059,639	32,721	6.8%
State Government	223	8,405,799	37,694	5.2%
Local Government	1,633	47,427,947	29,043	29.3%
Total	7,125	161,734,880	22,700	100%

Source: Dean Runyan Associates & California Employment Development Department

Kern County, California

As shown in Table 2-13, Kern County's diversified economy is weighted toward agriculture and mining. Services and government also provide substantial contributions to Kern County's employment and payroll. The NEMO Economic Area includes the population that resides within the zip code areas that include and surround Ridgecrest, a community which depends heavily on employment related to the activities of nearby military bases.

Table 2-13.

Kern County, California
Average Annual Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Agriculture, Forestry,Fishing	50,833	635,602,660	12,504	11.6%
Mining	10,841	565,977,266	52,207	10.4%
Construction	8,510	241,670,423	28,398	4.4%
Manufacturing-Durable	5,234	193,923,171	37,051	3.5%
Manufacturing-Nondurable	4,381	151,519,180	34,586	2.8%
Trans,Comm,Elec,Gas,Sanitary	8,711	285,879,939	32,818	5.2%
Wholesale Trade	7,772	258,897,927	33,312	4.7%
Retail Trade	22,022	387,111,091	17,578	7.1%
Finance, Insurance, Real Estate	6,494	199,622,431	30,740	3.7%
Travel, Dining, and Rec. Service	15,745	141,591,214	8,993	2.6%
Services: All others	37,323	903,998,523	24,221	16.5%
Non-Classified	33	625,679	18,960	0.0%
Federal Government	11,766	432,121,426	36,726	7.9%
State Government	5,513	169,255,441	30,701	3.1%
Local Government	30,138	900,535,676	29,880	16.5%
Total	225,316	5,468,332,047	24,270	100.0%

Source: Dean Runyan Associates & California Employment Development Department

San Bernardino County, California

As shown in Table 2-14, San Bernardino County's economy is highly diversified. Services, manufacturing, retail trade, and government provide strong contributions to San Bernardino's employment and payroll. The NEMO Economic Area includes the population that resides within zip code areas that include and surround the communities of Barstow and Needles.

Table 2-14.

San Bernardino County, California
Average Annual Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Agriculture, Forestry,Fishing	7,274	133,894,014	18,407	1.2%
Mining & Construction	22,622	672,350,528	29,721	5.8%
Manufacturing-Durable	37,316	1,118,743,097	29,980	9.7%
Manufacturing-Nondurable	18,794	550,803,011	29,307	4.8%
Trans, Comm, Elec,Gas, Sanitary	28,720	888,138,544	30,924	7.7%
Wholesale Trade	24,496	796,009,297	32,495	6.9%
Retail Trade	64,492	1,266,725,404	19,642	11.0%
Finance, Insurance, Real Estate	15,616	469,521,168	30,067	4.1%
Travel, Dining, and Rec. Service	40,545	396,300,511	9,774	3.4%
Services: All others	99,831	2,509,610,971	25,139	21.7%
Non-Classified	133	2,753,494	20,703	0.0%
Federal Government	11,877	431,387,659	36,321	3.7%
State Government	9,445	330,154,562	34,955	2.9%
Local Government	64,584	1,998,044,817	30,937	17.3%
Total	445,745	11,564,437,077	25,944	100.0%

Source: Dean Runyan Associates & California Employment Development Department

Government, services, and retail trade each provide strong contributions to Mohave County's employment and payroll. Table 2-15 shows that as a percent of annual payroll government accounted for approximately 25%, services 21%, and retail trade 14%. Within Mohave County, Bullhead City and the surrounding area is included in the NEMO Economic Area.

Table 2-15.

Mohave County
Annual Average Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Agriculture, Forestry,Fishing	365	6,047,890	16,592	0.8%
Mining	204	7,998,905	39,210	1.1%
Construction	2,914	56,985,436	19,557	7.7%
Manufacturing	2,792	64,553,178	23,123	8.7%
Transportation/Utility	1,672	45,618,696	27,288	6.2%
Wholesale Trade	1,241	29,683,908	23,929	4.0%
Retail Trade	8,345	101,000,440	12,104	13.6%
Finance, Insurance, Real Estate	1,722	43,939,837	25,524	5.9%
Travel, Dining, and Rec. Service	1,137	43,836,839	38,555	5.9%
Services: All others	8,236	153,502,794	18,637	20.7%
Government	5,473	186,673,083	34,111	25.2%
Non-Classified	57	724,293	12,819	0.1%
Total	34,155	740,565,299	21,683	100.0%

Source: Dean Runyan Associates & Arizona Department of Economic Security

NEMO Economic Area

Approximately 189,000 people reside within the NEMO Economic Area. Employment and payroll figure are based on County Business Patterns Data for firms located within the specified zip code areas. As a source of employment and payroll, the NEMO Economic Area depends heavily on travel, dining, and recreation services with this category comprising 35% of employment and 33% of annual payroll. All services combined make up 57% of employment and 53% of payroll. Although the average annual wages for these service jobs are low compared with those of mining and manufacturing, it is clear that service industries, particularly travel, dining, and recreation, drive economic activity within the NEMO Economic Area. A significant portion of these service jobs are in the hotels/casinos located in small towns such as Laughlin and Privim.

Table 2-16.

NEMO Economic Area

Annual Average Employment and Payroll (1996)

Major Industry Group	Average Annual Employment	Annual Payroll ($)	Average Annual Earnings ($)	Percent of Annual Payroll
Agriculture, Forestry,Fishing	886	10,502,450	11,854	0.5%
Mining	598	29,401,290	49,166	1.4%
Construction	2,893	85,163,440	29,438	4.1%
Manufacturing	1,613	60,149,990	37,291	2.9%
Transportation/Utility	3,264	108,773,400	33,325	5.3%
Wholesale Trade	1,085	36,826,930	33,942	1.8%
Retail Trade	9,664	183,031,800	18,940	8.9%
Finance, Insurance, Real Estate	2,248	49,227,330	21,898	2.4%
Travel, Dining, and Rec. Service	26,760	679,688,000	25,399	33.1%
Services: All others	14,326	359,952,700	25,126	17.5%
Federal Government	4,186	140,847,000	33,647	6.9%
State and Local Government	8,844	309,024,900	34,942	15.1%
Total	76,367	2,052,589,230	26,878	100.0%

Source: Dean Runyan Associates and Minnesota IMPLAN Group, Inc.

Overview

Compared to the statewide averages, the counties adjacent to NEMO contain a middle age population with less education and a lower income level. Compared to the counties, the limited tribal communities that surround NEMO are less educated, with a substantially lower income level.

Based on county level employment and payroll data, each county adjacent to NEMO provides a different picture. Clark County, which is economically dominated by activity in Las Vegas, does not provide an accurate description of employment activity with the NEMO Economic Area. Likewise, for Kern and San Bernardino County, most of the employment activity occurs outside the NEMO Economic Area. Esmeralda County, which is dominated by mining and government, does not contain any large communities near NEMO.

Inyo and Nye counties, both of which contain multiple communities within the NEMO Economic Area (i.e., Bishop, Big Pine, Lone Pine, Beatty, and Pahrump), provide a much more accurate picture of the employment and payroll activity that occurs around NEMO. Overall, the combined employment and payroll activity within Nye and Inyo County depends primarily on government, mining, and services with an emphasis on travel, dining, and recreation services.

Socioeconomic impacts associated with NPS management actions will most directly affect those people who live and work within the NEMO Economic Area. Given the large and diverse economies in adjacent counties, in particular Clark, Kern and San Bernardino, economic impacts associated with management actions will be overshadowed by other economic factors.

3. MANAGEMENT ALTERNATIVES

The 1998 GMP/DEIS for Mojave National Preserve and Death Valley National Park describes three management alternatives: *Alternative 1: Proposed Approach*; *Alternative 2: Existing Management*; and *Alternative 3: Optional Approach*. Both Alternative 1 and Alternative 3 are described relative to Alternative 2: Existing Management. Under each alternative these documents list management actions that NPS will consider for a number of resource issues. Resource issues fall under the main headings of Resources Management; Native American Interests; Visitor Use; Services and Facilities; Roads and Circulation; Administrative Operations and Facilities; Education and Research Centers; Land Ownership and Use; and Plan Implementation.

The following section describes and analyzes the NPS management actions with the potential to generate socioeconomic impacts within the NEMO Economic Area. The socioeconomic analysis relates to the entire NEMO Economic Area and considers the combined management actions for both Death Valley National Park and Mojave National Preserve. *BLM, which did develop a GMP/DEIS, determined that their management actions did not have socioeconomic impacts; as requested, this analysis does not consider the impacts of BLM management actions.*

Only those management actions which were determined to have potential socioeconomic consequences and differed from Alternative 2: Existing Management are described in this section *(for a complete description of all management actions refer to the 1998 GMP/DEIS for Mojave National Preserve and Death Valley National Park)*. When data are available economic impacts were quantified and analyzed in term of primary economic indicators (i.e. employment, output, payroll); otherwise, economic impacts are discussed qualitatively.

Resource Management

Proposed Approach Actions:

- Actively participate in adjacent land use planning and monitor the visual, air, night sky, and water resources.
- Prepare guidelines for the built environment and for a Communication Management plan within the Death Valley National Park.
- Examine use of water developments (guzzlers, livestock tanks, and troughs).
- Protect sensitive species through consideration in all compliance actions.
- Require developers in desert tortoise critical habitat on public land to purchase equivalent replacement habitat.
- Remove burros by a multiphase approach including live capture, adoption, and possible shooting of the last remaining animals.
- Develop and implement an applied cultural resource program
- Develop and implement a program to identify, inventory, and nominate archeological sites, historical properties, cultural landscapes, and ethnographic resources.

Analysis:

The proposed management actions will enhance the quality of the visitor's experience, which should encourage people to make a return trip and recommend a first time trip to friends and relatives.

Depending on the extent of the visitor access controls and limits to critical habitat, management actions could increase or decrease visitors in the area. Management could provide a site from which to view or experience the protected area either on the fringe or perhaps within a designated visitor walkway/viewing area which would attract certain types of visitors to an area. On the other hand, restrictions for some types of recreation use could reduce the number of visitors to an area.

Native American Interests

Proposed Approach Actions:

- Meet regularly with tribes to discuss local issues.
- Consider modification to the current 1988 GMP strategy for the village site at Furnace Creek
- Form a review board to consider tribal resource management plans, assist with cooperative monitoring of resource use, and help resolve local differences concerning resource use.
- Work with the Bureau of Indian Affairs to seek to provide for training internships for tribal members.
- Consider modification of management strategy for the village site at Furnace Creek.

Analysis:
Each of these actions would most likely improve the overall well being for tribal community members as well as other residents living within the region. Particularly with regard to internships, new opportunities for tribal members to gain work-related job experience would enhance the stability and improve economic prospects for tribal members.

Visitor Use, Services, and Facilities

Proposed Approach Actions:

- Increase staffing and funding to support new visitor services and facilities.
- Place a small information and visitor contact center at the Preserve's headquarters building in Barstow to assist the public, specifically the needs of local communities.
- Maximize technologies to provide visitors with portable information media such as compact disks, audio tapes, brochures, and other printed handouts to support a self guided interpretive program.
- Install a minimal number of road or trailside interpretive and information displays and wayside exhibits.
- During the high visitation time of year, provide ranger-led tours at Soda Springs.
- Upgrade existing visitor facilities (a comfort station (restroom), picnic area, and a self guided interpretative program) or, if necessary, replace them.
- Develop Kelso Depot as the main visitor center for the Preserve, including:
    1. Restore the Beanery Café to provide limited food service for the public.
    2. Consider concession operation at the Beanery.
    3. Establish NPS offices Kelso Depot.
    4. Establish short-term lodging for employees or others.
    5. Construct new visitor parking to the northeast of Kelso Depot.
    6. Work with Union Pacific Railroad to allow rail passengers to unload off of trains and enter Kelso Depot.
    7. Invite the Union Pacific to partnership in the creation of an outdoor display area that highlights the historic and current rail operations at Kelso Depot.
    8. Reconstruct the landscape around Kelso Depot to the period of historic significance.
- Acquire a historic post office and/or school house and use these buildings for interpretative purposes.
- Interpret to the public the remains of a historic iron ore loading area.
- Improve accessibility for disabled visitors at Mid Hills campground.
- Cooperate with other agencies and organizations to make information available along approach routes to the park.
- Develop unstaffed orientation/information stations along the Park's five major entrance roads.
- Improve existing campgrounds by eliminating safety hazards and adding amenities.
- Improve key attractions such as Badwater and/or cultural resources such as Eureka Dunes and Devils Hole.
- Establish a parking lot near the junction of the Chicken Strip access road in Saline Valley.
- Reduce the size of and relocate Stovepipe Wells campground.
- Redesign Sunset, Texas Spring, and Furnace Creek campgrounds to accommodate average peak winter demand and improve camping conditions.
- Redesign all RV campgrounds to meet national fire codes.

Optional Approach Actions:

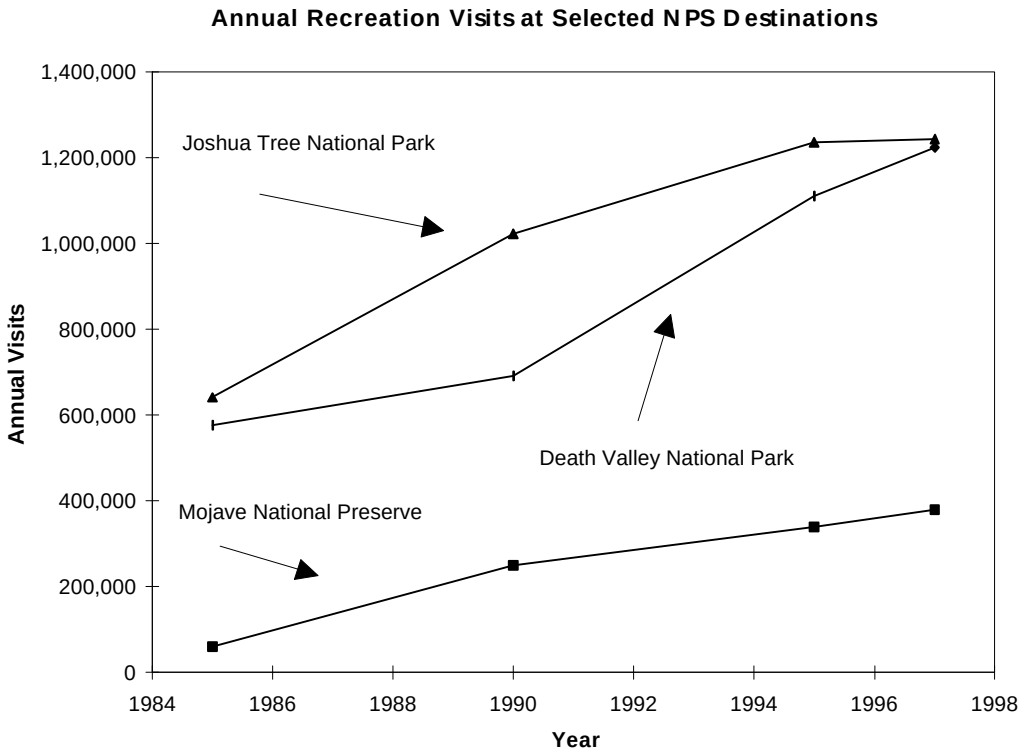
- Increase use of wayside exhibits, interpretative displays, and trailhead displays in the Preserve. Also increase public contact with interpretive rangers.
- Approach state and other federal land management agencies in an attempt to create multi-agency staffing of the information centers at Baker and Needles.
- Consider ranger guided tours as a key feature at Soda Springs.

- Consider a nature center for children at Hole-in-the-Wall campground.
- Improve roadside camping areas which receive high amounts of use by adding metal fire rings and picnic tables.

Analysis:
This analysis focuses on estimating the additional visitor industry growth that will occur within the NEMO Economic Area as a result of the proposed/optional management actions. Based on past and current visitation growth rates, the projects future visitation growth associated with additional visitor related facilities and programs.

To begin an analysis of economic impacts associated with management actions related to visitor use, services, and facilities, we examined the number of annual visits for Mojave National Preserve, Death Valley National Park, and Joshua Tree National Park. As shown in Figure 3-1, annual visits to Death Valley and Joshua Tree National Park have risen sharply over the last decade; albeit the rate of increase has leveled off in recent years. Although visits to Mojave National Preserve have risen, the growth has been much slower with more recent years relatively flat.

Figure 3-1.



The most recent visitor study results show that Mojave National Preserve tends to attract people who live in the region --75 percent reside in the states of California and Nevada--and that visitation depends primarily on regional demand. In contrast, less than one-third of the visitors to Death Valley National Park reside in California and Nevada with over 61 percent of visitors coming from foreign countries (primarily Germany and United Kingdom). The difference in visitor origin suggests that Mojave National Preserve and Death Valley National Park appeal to significantly different visitor markets.

Through the next decade, annual visitation to Mojave National Preserve will remain well below the more internationally known destinations such as Death Valley and Joshua Tree National Park. However, access to Mojave National Preserve lies along I-15, a main thoroughfare for visitors traveling to and from Las Vegas. With the addition of new visitor attractions, services, and facilities at Kelso Depot, Mojave National Preserve could attract more of the Las Vegas bound travelers and experience a significant increase in visitation within the Preserve.

Traffic data suggests that Mojave National Preserve has a tremendous potential to increase annual visitation. Based on California Department of Transportation traffic counts, approximately 10.2 million vehicles per year travel along I-15 near road access to Mojave National Preserve. Assuming one-third of these vehicles are pleasure travelers with an average party size of 2.5, this vehicle traffic represents approximately 8.4 million potential visitors a year. For 1997, NPS reported approximately 379,000 visitors to Mojave National Preserve, less than 5 percent of the estimated potential.

In order to project the impact within the NEMO Economic Area, visitor estimates were calculated separately for both Death Valley National Park and Mojave National Preserve. Within Mojave

National Preserve, the proposed/optional management actions associated with visitor use services and facilities could attract additional travelers who would otherwise overlook Mojave National Preserve. The potential to attract new visitors will depend on a well planned facility with convenient and well maintained road access.

For Mojave National Preserve, the projected increase in visitors is based on the assumption that the rate of visitor growth for the next decade continues at approximately the same fast rate as the previous decade. With regard to road access for Kelso Depot, visitor projections assume NPS provides adequate road surface conditions and maintains roads to allow for comfortable access and ease for pleasure travelers. Considering the traffic volume along I-15, the projected increase appears reasonable.

Within Death Valley National Park, the proposed/optional management actions associated with visitor services and facilities would continue to maintain and enhance the overall experience for visitors, but would not have a major impact on the number of future visitors. The proposed/optional management actions were assumed to increase visitors 5 percent over the rate of growth projected with existing management. Table 3-1 shows the projected annual change in visitation for both Death Valley National Park and Mojave National Preserve in years 2005 and 2010. Figure 3-2 illustrates and compares each of these trends through time.

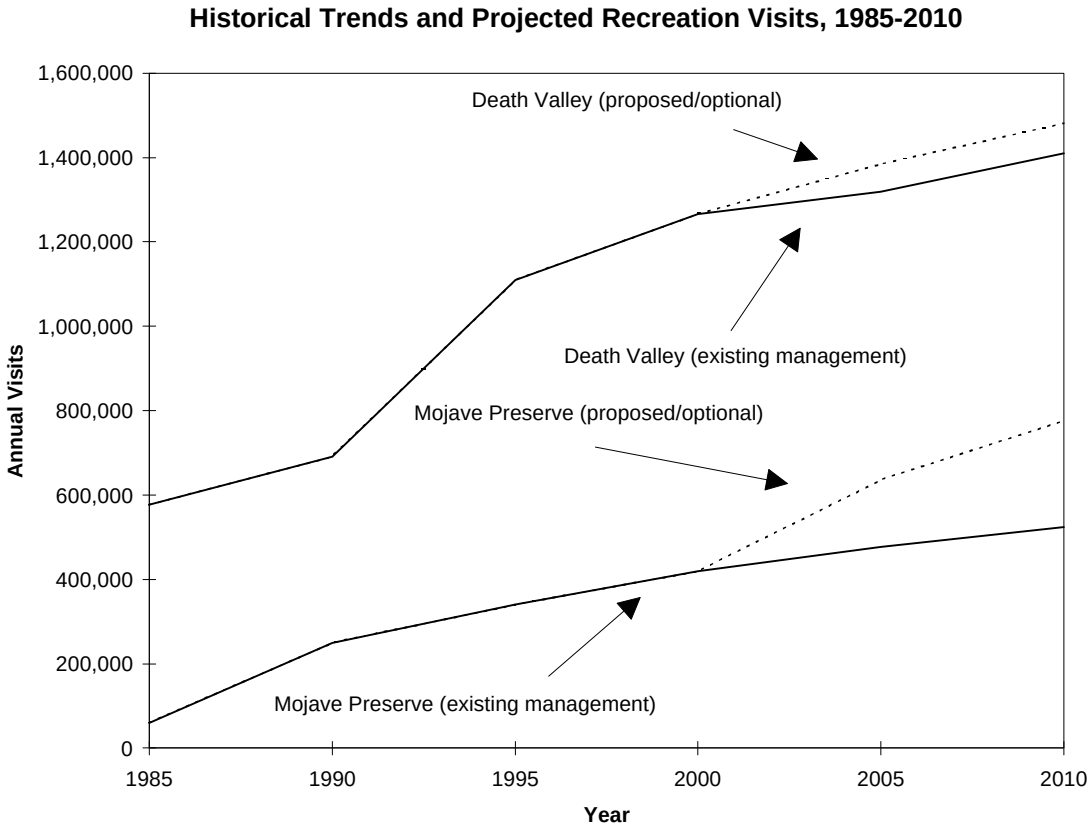
Table 3-1.

Death Valley National Park and Mojave National Preserve Visitor Volume Projection, 2005-2010

	Projected Visitor Volume, 2005			Projected Visitor Volume, 2010		
	Existing Management	Proposed/ Optional	Difference	Existing Management	Proposed/ Optional	Difference
Death Valley National Park	1,318,532	1,384,459	65,927	1,410,742	1,481,279	70,537
Mojave National Preserve	476,390	636,117	159,727	523,191	775,967	252,776
Total	1,794,922	2,020,576	225,654	1,933,933	2,257,246	323,313

Source: Dean Runyan Associates

Figure 3-2.



Based on the 1997 Mojave National Preserve[1] and Death Valley National Park[2] visitor studies, expenditure amounts and proportions were used to estimate the economic impact of the additional visitors associated with the proposed/optional management actions (i.e., visitation over and above the current trends). The visitor reports showed average per capita expenditures of $33 for Mojave National Preserve visitors and $76 for Death Valley National Park visitors. These figures were assumed for the visitor use, services, and facilities analysis.

Table 3-2 shows, in terms of employment, output, proprietor income, and employee compensation, the economic impact for the NEMO Economic Area.

[1] Littlejohn, Margaret, 1997, Mojave National Preserve Visitor Study-Report 94, National Park Service, Cooperative Park Studies Unit, University of Idaho
[2] Littlejohn, Margaret, 1996, Death Valley National Park Visitor Study-Report 90, National Park Service, Cooperative Park Studies Unit, University of Idaho

Table 3-2.

Direct Economic Impacts of Increased Visitors for NEMO Economic Area

	Projected Visitor Volume, 2005				Projected Visitor Volume, 2010			
Expenditure Category	Emp. (Jobs)	Output ($000)	Prop. Income ($000)	Employee Comp. ($000)	Emp. (Jobs)	Annual Output ($000)	Prop. Income ($000)	Employee Comp. ($000)
Hotels and Lodging	57	3,686	0	1,650	73	4,754	0	2,128
Eating and Drinking	78	2,818	115	928	101	3,664	149	1,206
Automobile Services	29	2,240	204	556	42	3,289	300	816
Retail	51	1,537	235	572	66	1,996	305	743
Total	215	10,281	554	3,706	282	13,703	754	4,893

Source: Dean Runyan Associates and Minnesota IMPLAN Group, Inc.

Roads and Circulation

Proposed Approach Actions:

- Prepare a road management plan to provide detailed guidance for management of the existing road system within Mojave National Preserve.
- Reevaluate the current road management plan for Death Valley National Park.
- Patrol Mojave Road to offer emergency assistance, and protect cultural and natural resources.
- Install interpretive panels and directional signs along Mojave Road.
- Do not grant business permits for commercial guided tours of Mojave Road.
- Require large groups using Mojave Road to camp in designated areas and obtain a special use permit.
- Assess the feasibility of placing NPS interpreters on trains and allowing passengers to stop at the Kelso Depot Visitor Center.

Optional Approach Actions:

- Establish a limit on the number of vehicles allowed to travel on Mojave Road each year. Limit the number of groups using Mojave Road and the number of campsites used in association with the roads.

Analysis:
The level of road management could significantly influence the estimates for visitor use as projected in the previous analysis. With regard to Mojave Road, the proposed/optional alternatives could enhance the overall visitor experience, but could also result in lost opportunities for large groups and guided tour groups. The 1997 Mojave National Preserve Visitor Study showed that only 16 percent of the Mojave National Preserve travelers visited Mojave Road. The proposed/optional management alternatives would impact a relatively small number of the current Mojave National Preserve visitors.

Administrative Operations and Facilities

Proposed Approach Actions:

- Construct new facilities to support Baker as the interim central maintenance operation.
- Construct a mobile maintenance operation to support shops at Baker and Hole-in-the-Wall campground.
- Explore the possibilities of a shared highway equipment and materials staging yard at Kelso Depot.
- Renovate, replace, or remove existing employee housing in Mojave National Preserve.
- Do not provide employee housing in Needles or Barstow.
- Utilize upper rooms in the Kelso Depot for employee and temporary housing.
- Consider relocating appropriate administrative facilities, staff and employee housing outside Death Valley National Park.

Optional Approach Actions:

- Establish an office on the east of the Preserve for maintenance, visitor services, and resource management.
- Create new housing in the Preserve to place employees close to their work.

Analysis:
Construction of new facilities in Baker could generate a positive economic impact for the community. For example, construction workers would spend a small portion of their earnings to purchase food items in town. NPS would likely locate additional workers in Baker to support the facilities. Most likely, these workers would not live in Baker, but commute in from Barstow. The economic impacts associated with the proposed/optional management actions would be small for the NEMO Economic Area and even smaller for the town of Baker.

Education and Research Centers

Proposed Approach Actions:

- Develop a cooperative management agreements with California State University Consortium (currently, NPS operates under an informal agreement).
- Review and approve all research proposals on NPS land.
- Coordinate ranger led tours of Soda Springs and Zzyzx structures with California State University.

Optional Approach Actions:

- Place unstaffed entry stations at key entry points to public use areas in the Granite Mountains Natural Reserve.
- Monitor sections of Granite Mountain Natural Reserve that receive public use.
- Seek a partnership with Granite Mountain Natural Reserve.

Analysis:
A cooperative agreement would more clearly define the management roles and responsibilities for both the NPS and the California State Universities involved with research. Such agreements could reduce or add to the operating costs for either entity. As described, new management agreements would not result in any discernible economic impacts for the NEMO Economic Area. As a visitor attraction, education and research centers do not appear to attract many of the Mojave National Preserve visitors. Based on the 1997 Mojave National Preserve Visitor Study, only 4 percent of the visitors in the Preserve reported Zzyzx as a place they visited.

Land Ownership and Use

Proposed Approach Actions:

- Seek funds to acquire private lands and interests.
- Pursue donations and exchanges from willing sellers.
- Examine the validity of existing unpatented mining claims.
- Develop an active abandoned mineral lands inventory and reclamation program.
- Actively seek to purchase and retire grazing permits from willing sellers.
- Work with conservation organizations to purchase grazing permits from willing sellers.
- Close to grazing the NPS portion of the Eureka Valley allotment.
- Prepare an allotment management plan for the Hunter Mountain and Last Chance grazing allotments.
- Actively monitor grazing during tortoise activity periods to observe impacts and if necessary, take appropriate mitigation measures.
- Prepare a grazing management plan for any active NPS grazing permits.
- Establish a community based management team of ranchers, environmental organizations, and park staff to provide a forum for communications on range management practices.

Optional Approach Actions:

- Acquire private land or interests only on an opportunity basis (i.e., if the NPS were approached by a willing seller, or if a development project would adversely affect park resources).
- Conduct sensitive resource analysis to examine the impacts of likely mineral development scenarios and acquire properties where activities conflict with resource values.
- Use grazing fees for resource management, restoration, and range development projects.
- Permit limited new range developments.
- Do not establish a community based grazing team.

Analysis:

Mining:

The proposed management alternative would not impact active mining operations within NEMO. These active mines have gone through an environmental review process and meet the current NPS standards. Under the optional management alternative, particularly where resource issues conflict, future mining operations may experience more difficulty meeting NPS approval standards. However, most likely, the decision to pursue a mining claim will be based primarily on external market supply and demand constraints (see page 39 Catalysts for Change).

Grazing:

Within NEMO, NPS manages portions of 15 grazing allotments (BLM also manages portions of these allotments). Currently, the NPS portion of these grazing allotments include approximately 1.4 million acres and 44,000 Animal Unit Months (AUMs). Table 3-3 lists these allotments by name along with acres and AUM's managed by the NPS.

Table 3-3.

Grazing Allotments Managed by NPS within NEMO

Allotment	Acres	AUM's
Clark Mountian	17,662	371
Colton Hills	147,847	2,877
Eureka Valley	800	-
Gold Valley	16,190	1,152
Granite Mountains	262,319	4,475
Hunter Mountain	86,400	1,105
Kessler Springs	214,346	7,615
Lacey-Cactus-	800	-
Lanfair Valley	271,642	11,560
Last Chance	55,600	2,249
Piute Valley	14,726	-
Round Valley	653	27
Valley View	259,258	8,069
Valley Wells	42,706	4,644
Total	1,390,949	44,144

Source: National Park Service

Ranchers in the area typically graze cattle 12 months of the year. Given a 12 month season, 44,000 AUMs is equivalent to approximately 3,667 head of cattle. In 1993, University of California Cooperative Sample Costs and Income[3] studies estimated gross income of $427 per beef cow for a cow/calf operation on rangeland. This gross income figure was adjusted to 1997 dollars and used to estimate economic impacts associated with NPS grazing allotments within NEMO. Assuming an 85 percent reduction in AUMs, the NEMO Economic Area would lose a 16 direct jobs, proprietor income of $158,000, and employee compensation of $128,000. Table 3-4 shows the direct economic impacts associated with a selected range of AUM reductions within NEMO. The range was selected because these grazing reductions, which depend on NPS funding and willing sellers, will occur incrementally over time.

Table 3-4.

[3] Nelson, A.O., 1993, Cow-Calf Operations on Rangeland, Sample Costs and Income-1993, Fresno and Maders County, University of California Cooperative Extension, Fresno, California

Direct Economic Impacts Associated with NPS Grazing Allotments within NEMO

Reduction in AUMs	Employment (jobs)	Output ($000)	Proprietors Income ($000)	Employee Compensation ($000)
100%	19	1,675	186	150
85%	16	1,424	158	128
50%	10	838	93	75

Sources: Dean Runyan Associates and Minnesota IMPLAN Group, Inc.

Plan Implementation

Proposed Approach Actions:

- As a first priority, seek funds to restore Kelso Depot.
- Immediately implement burro and grazing management strategies.
- Increase staff and budget required to implement proposed actions

Optional Approach Actions:

- Increase staff and budget required to implement optional actions.

Analysis:
The estimated NPS costs to implement the proposed and optional approach actions range from approximately 20 to 26 million dollars over a 15 year period. A detailed breakdown of these cost estimates are available in the 1998 GMP/DEIS for Mojave National Preserve and Death Valley National Park.

4. TOTAL ECONOMIC IMPACTS

This chapter provides estimates of the additional economic impacts associated with proposed/optional management actions for the NEMO Economic Area. Total economic impacts, in addition to the direct impacts previously discussed, include indirect and induced impacts. An estimate of the total economic impact provides a more complete picture of the potential economic impacts associated with proposed/optional management actions. Before proceeding it is useful to clarify these terms which will appear in the total economic impact analysis. Additional discussion, as well as a description of the IMPLAN methodology we used, can be found in Appendix B.

Direct impacts are the economic impacts that are directly associated management actions within NEMO. Direct jobs are jobs directly impacted by management actions. Direct employee compensation is the profits, wages, tips, and benefits of the people working in direct jobs. Direct output is the value of goods and services produced by the people working in the direct jobs.

Indirect impacts result from the supplies and services that directly impacted businesses purchase from other firms within the NEMO Economic Area. Many of these purchases are made from businesses not directly impacted by the NEMO management actions (e.g., wholesale, manufacturing, construction and financial sectors). In turn, these other businesses also purchase goods and services. This series of indirect purchases generates additional employment, output, and income within the NEMO Economic Area.

Induced impacts result from the household spending of employees (i.e., those employed by direct and indirect businesses) who make purchases within for food, housing, transportation, recreation, and other goods and services within the NEMO Economic Area. These household purchases induce additional employment, output, and income.

Visitation

The total economic impacts of increased visitors associated with the proposed/optional management actions range from 277 jobs in year 2005 to 367 in year 2010 for the NEMO Economic Area. These job estimates along with annual output and employee compensation are shown in Tables 4-1 and 4-2 for years 2005 and 2010, respectively.

Table 4-1.

Total Economic Impacts of Increased Visitation for NEMO Economic Area, 2005

Impact	Employment (Jobs)	Output ($000)	Proprietors Income ($000)	Employee Compensation ($000)
Direct	214	10,281	554	3,706
Indirect	21	1,877	97	509
Induced	42	3,066	181	931
Total	277	15,224	832	5,146

Source: Dean Runyan Associates and Minnesota IMPLAN Group, Inc.

Table 4-2.

Total Economic Impacts of Increased Visitation for NEMO Economic Area, 2010

Impact	Employment (Jobs)	Output ($000)	Proprietors Income ($000)	Employee Compensation ($000)
Direct	283	13,702	754	4,894
Indirect	28	2,499	130	681
Induced	56	4,070	240	1,235
Total	367	20,271	1,124	6,810

Source: Dean Runyan Associates and Minnesota IMPLAN Group, Inc.

Grazing

Assuming NPS, through purchases and exchanges from willing sellers, reduces 85% of the grazing allotments, the NEMO Economic Area will lose a total of 22 jobs, $193,000 in proprietor

income, and $239,000 in annual employee compensation. Table 4-3 shows the total economic impact associated with grazing NPS grazing allotments for the NEMO Economic Area.

Table 4-3.

Total Economic Impacts of NPS Grazing Allotments for NEMO Economic Area

Impact *	Employment (Jobs)	Output ($000)	Proprietors Income ($000)	Employee Compensation ($000)
Direct	16	1,424	158	128
Indirect	3	258	21	41
Induced	3	228	14	70
Total	22	1,910	193	239

* Assumes 85% reduction in NPS AUMs within NEMO

Source: Dean Runyan Associates and Minnesota IMPLAN Group, Inc.

Cumulative Results

To summarize the total economic impacts for the NEMO Economic Area, the proposed/optional management actions are combined together and shown as a cumulative impact. For purposes of this discussion, the impacts associated with the increased visitation projects for the year 2005 are combined with the 85 percent reduction in grazing. For the grazing reductions, which depend on willing sellers and will require a number of years to phase implement, the year 2005 also provides a plausible time frame to anticipate the assumed reductions.

The total economic impact summary shows a combination of results for the NEMO Economic Area. As a primary result of enhanced visitation, the NEMO Economic Area would gain jobs, output, proprietor income, and employee compensation. In summary, the NEMO Economic Area would gain a total of 255 full and part-time jobs, an increase of over $600,000 in proprietor income, and an increase of $4.9 million in employee compensation. Total economic impacts for the NEMO Economic Area associated with combined management actions are shown in Table 4-4.

Table 4-4

Total Economic Impacts of Proposed/Optional Management Actions for NEMO Economic Area, 2005

Resource Impacts	Employment (Jobs)	Output ($000)	Proprietors Income ($000)	Employee Compensation ($000)
Enhance Visitation	277	15,224	832	5,146
Reduce Grazing	(22)	(1,910)	(193)	(239)
Total	255	13,314	639	4,907

Source: Dean Runyan Associates and Minnesota IMPLAN Group, Inc.

Each of the resource impacts presented is independent (i.e., each could still occur with or without the other). For example, the economic impacts associated with enhanced visitation could occur with no reduction or a smaller reduction in grazing. Given the time horizon necessary for implementation and the political contingencies that exist for funding, additional combinations and scenarios are certainly plausible.

With a resident population of 185,000 and 76,000 jobs, the proposed/optional management alternatives will not significantly impact the NEMO Economic Area. Even within specific industries such as range fed cattle and travel-related services, the positive and negative economic impacts appear minor relative to total employment in the region.

5. CATALYSTS FOR CHANGE

Catalysts for change describe external forces which could significantly impact socioeconomic conditions within the NEMO Economic Area. These selected forces were chosen because 1) change is likely to occur in the foreseeable future, and 2) change would significantly impact the current economic conditions.

Economic Growth in Developing Countries:
As countries such as India, China, Latin America and Eastern Europe continue to develop and acquire wealth, more of the residents of these nations will begin to travel abroad. With large numbers of Germans already visiting Death Valley National Park, economic growth and continued political change in Eastern Europe could result in a significant increase in the number of visitors traveling to the United States and likewise Death Valley National Park.

Airline Travel Trends:
Death Valley National Park's remote location means that many visitors depend on air travel. Trends within the airline industry could have a profound impact on future visitation. A number of airlines are trying to form global alliances which may help these airlines to share costs training and catering services and use landing slots more efficiently. Lower air fare could increase the number of Death Valley National Park visitors. In Europe, where the airline industry is beginning to deregulate, lower costs could encourage more European visitors to visit Death Valley National Park. Fuel costs, which are subject to many of the same uncertainties as mineral markets, are also a major factor in the price of air travel.

Economic Shocks and Trends:
Travel related business, more than many other businesses, are vulnerable to external economic shocks. During periods of slow economic growth, travel spending is one of the first purchases that consumers curtail. A prolonged period of slow U.S. economic growth could reduce the number of visitors who travel to Death Valley National Park. Conversely, as travelers who would otherwise travel to more distant and expensive destinations decide to visit a more local less expensive destination, a long-term or perhaps even a sudden shock to economic growth could increase the numbers of domestic visitors to both Death Valley National Park and Mojave National Preserve. European economic shocks and trends, particularly in Germany, could also significantly impact the number of visitors in Death Valley National Park.

Las Vegas:
Las Vegas, Nevada has become one of the largest tourist draws in America, attracting 32 million visitors in 1997. New hotels now offer travelers entertainment which go far beyond gambling. Hotels such as the Luxor, a black glass pyramid, and New York New York; a life size replica of New York's most famous skyscrapers, are major tourist attractions. Las Vegas, still considered adult entertainment, has begun to capture more of the family entertainment market. Las Vegas now offers a variety of attractions which include roller coasters, theme parks, bungee jumping, and a ride in a Star Trek vessel complete with live characters. In 1997, 11% of visitors brought children with them, double the share ten years ago. If this trend continues, Las Vegas will soon compete with Disney as well as Atlantic City, and continue to attract additional visitors. Continued success for Las Vegas will mean an increase in the number of travelers who travel through Mojave National Preserve and are within a two hour drive of Death Valley National Park.

Supply of and Demand for Minerals:
The world-wide supply of and demand for minerals will determine the economic viability of mining operations. Factors which could affect supply include new discoveries, the release of stock piled reserves (e.g., gold), and new production and exploration technology. Factors which could affect

demand include the development of substitutes, transportation costs, shifts in consumer tastes and preferences, and shifts in technology to reuse or recycle minerals. In addition, unpredictable events can substantially impact the supply of and demand for minerals. These occurrences include labor strikes, perceptions of supply, wars, energy crises, natural or other disasters, the formation of political alliances and cartels, and changes in government policies.

Price of Beef

A number of factors including trade agreements, shifts in preferences, and adverse weather conditions can impact the price of beef which is determined on the world market. After a three year period of weak prices which were primarily the result of a decline in world beef consumption -- European beef consumption dropped sharply due to concerns about “mad cow disease” and other meat safety issues -- the beef industry has begun to recover. As a result of the North American Free Trade Agreement (NAFTA), the U.S. beef market has benefited from increased exports to Mexico; however, NAFTA has enabled Western Canada to expand beef shipments to the western United States. A proposed agreement to fully standardize beef grading methods between the U.S. and Canada could further reduce or eliminate the expected growth in U.S. exports to Canada. In addition, many Latin American countries have recently expanded beef production. For U.S. beef producers, particularly those ranchers who lease grazing allotments, each of these factors could have a significant impact on the economic viability of raising cattle.

APPENDICES

Appendix A. - NEMO Economic Area Zip Codes

Appendix B. - IMPLAN Modeling System

NEMO Economic Area Zip Codes

State	County	Zip Code
Arizona	Mojave	86430
Arizona	Mojave	86442
California	Inyo	93513
California	Inyo	93514
California	Inyo	92328
California	Inyo	93526
California	Inyo	93545
California	Kern	93554
California	Kern	93555
California	San Bernardino	92364
California	San Bernardino	92309
California	San Bernardino	92311
California	San Bernardino	92327
California	San Bernardino	92310
California	San Bernardino	92363
California	San Bernardino	92338
California	San Bernardino	92365
California	San Bernardino	93562
Nevada	Clark	89018
Nevada	Clark	89019
Nevada	Clark	89029
Nevada	Esmeralda	89013
Nevada	Nye	89041

IMPLAN MODELING SYSTEM[4]

IMPLAN is a widely used, nationally recognized economic impact model, first developed by the U.S. Forest Service. IMPLAN provides estimates of the additional economic activity associated with an. This methodology has been packaged, along with the necessary data files, as IMPLAN Pro by the Minnesota IMPLAN Group, Inc. (MIG) of Stillwater, Minnesota, and provides the basis for the quantitative analysis in this report.

The following are some of the conventions used by IMPLAN.

Database Components
The IMPLAN databases consist of two major parts: 1) national-level matrices and tables and 2) economic and physical data at the county and/or state level. The national matrices are combined with regional data to create a regional model which can be edited to reflect local conditions.

The IMPLAN data is divided into four main categories:

1. Industry Output
2. Employment
3. Value Added (includes employee compensation)
4. Final Demands

Industry output represents the dollar value (producer price of goods and services, see pg. 102) of an industry's total production. The data is derived from a number of sources including Bureau of Census economic censuses and the BLS employment projections.

Employment is listed as a single number of jobs for each industry. The data is derived from ES202 employment security data supplemented by county business patterns and Regional Economic Information System (REIS) data. All IMPLAN databases, after 1985, include both full-time and part-time workers in employment estimates.

Value Added includes employee compensation, proprietor income, other property type income, and indirect business taxes. Employee compensation includes the total payroll costs (including benefits) of each industry in the region. Proprietary income consists of payments received by self-employed individuals (includes private business owners, doctors, and lawyers). Other property type income consists of payments from rents, royalties, dividends, and interest. Indirect business taxes consist primarily of excise and sales taxes paid by individuals to businesses.

Final Demands are the dollar value of goods and services purchased by consumers and institutions (federal, state, and local government). Personal consumption expenditures is the largest component of final demand. It consists of payments by individuals/households to industries for goods and services used for personal consumption. IMPLAN final demands are measured in terms of producer prices.

[4]Minnesota IMPLAN Group, Inc., "IMPLAN Professional Users Guide", February, 1997

Producer Prices are the prices paid at the factory door. This is the money an industry receives for its output. Input-output models such as IMPLAN are concerned with effects on industries and all dollar values are in terms of producer price.

Purchaser Prices are those paid at the retail level. A purchase price includes retail markup, wholesale markup, transportation costs, and the price at the factory door. *If an impact analysis involves purchaser prices, the values need to be subdivided to work with the producer-priced input-output model.* This is done using margins.

Margins represent the difference between producer and purchaser prices. Margins split a purchase (sales) price into the appropriate producer values and assigns each value to the correct industry. Margins do not apply to service businesses (includes lodging and food services) which produce the service at the same time it is purchased.

Trade Flows

Trade flows describe the movement of goods and services between a defined region and the outside world (imports and exports into and out of the study region). To estimate how much of the local production of a commodity will be used to supply local demand and how much will be exported from the region, IMPLAN offers a choice of two methods; Regional Purchase Coefficients (RPC's) and Supply/Demand Pooling. RPC's represent the portion of local demand purchased from local producers for each commodity. IMPLAN software automatically generates RPC's for each commodity with a set of econometrically based equations. Supply/demand pooling assumes that local demand will buy as much locally as possible. Since this minimizes imports into the region it will maximize local economic activity.

Multipliers

Input-output models are driven by final consumption (or final demand). Industries respond to meet demands directly or indirectly (by supplying goods and services to industries responding directly). Each industry that produces goods and services generates demands for other goods and services. These other producers, in turn, purchase goods and services. These indirect purchases (indirect effects) continue until "leakage" from the region (imports, wages, profits, etc.) stop the cycle. These iterations are described by multipliers.

IMPLAN generates three types of multipliers, "Type I" , "Type II", and "Type III". A Type I multiplier measures the direct and indirect effects of a change in economic activity. It captures the effect of industries buying from other local industries. A Type II multiplier measures the direct and indirect effects and also takes into account the income and expenditures of households employed in both the direct and indirect businesses within the Oregon economy (i.e., induced effect). The induced effect is based on changes in the associated value added component (employee compensation etc.). A "Type II" multiplier was used estimate indirect and induced effects in this study.

A Type III multiplier measures the same effects as a Type II; however, a Type III multiplier bases the induced effect on changes in the associated number of jobs. Each job is associated with an average household population and average expenditures per person for the study area. All jobs are treated equally regardless of income potential.

Each of these multiplier types can be calculated for output, employment, and income (value added).

Output Multipliers

Output multipliers are derived by dividing the total (direct, indirect, and induced) output effects by the direct output. An output multiplier provides an indicator of the total output created (direct, indirect and induced) for each dollar of direct output.

Income Multipliers
Income multipliers (or any of the value added components) are derived by dividing the total (direct, indirect, and induced) income effects by the direct income. An income multiplier provides an indicator of the total income created (direct, indirect and induced) for each dollar of direct income.

Employment Multipliers
The employment multiplier is created in the same manner as the income multiplier, but using employment rather than income. An employment multiplier provides an indicator of the total jobs (direct, indirect and induced) for each direct job.

NEMO Economic Area Data and Analysis Conventions
The NEMO Economic Area analysis makes use of a data set representing zip codes which comes from the Bureau of Census County Business Patterns (CBP) program. The 1990 census of population is also available at the zip code level. The weighted average rate of population growth for each the affected counties was used to estimate the 1996 population for the NEMO Economic Area. population for the 1994, the most recent year for which data are available. All impact amounts expressed in 1994 dollars were adjusted to 1996 dollars using IMPLAN deflators based on the U.S. Bureau of Labor Statistics' Consumer Price Index.